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TRANSFER METHOD AND ADHESIVE FOR TRANSFER

BACKGROUND OF THE INVENTION

This invention relates to a transfer method and an adhesive for transfer.

5 The conventional method of creating a transfer sheet by a copy machine or printer consists of the user having to transfer the transfer sheet by heating and pressing using the iron machine.

Since the conventional transfer sheet created by a copy machine and printer is transferred by using an iron machine, it cannot be used by children who cannot use the iron
10 machine, and the application is limited in who can use it.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the invention to provide a transfer method and an adhesive for transfer that everyone can perform to transfer to any substrate simply and
15 easily.

The lining and the board effect of the pattern for transfer etc. are achieved.

Novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages thereof, are described below with reference to the accompanying drawings in which
20 preferred embodiments of the invention are illustrated as an example.

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It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only, and are not intended as a definition of the limits of the invention.

5 BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flow diagram showing a first embodiment of the present invention;

FIG. 2 is an explanation view of a step for applying an adhesive for transfer showing a first embodiment of the present invention;

FIG. 3 is a plan view of a transfer sheet showing a first embodiment of the present invention;

FIG. 4 is a cross sectional view taken along a line 4 – 4 of Fig. 3 showing a first embodiment of the present invention;

FIG. 5 is an explanation view of a step for transferring showing a first embodiment of the present invention;

15 FIG. 6 is a flow diagram showing a second embodiment of the present invention;

FIG. 7 is an explanation view of a step for applying an adhesive for transfer showing a second embodiment of the present invention;

FIG. 8 is an explanation view of a transfer sheet showing a second embodiment of the present invention;

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FIG. 9 is a flow diagram showing a third embodiment of the present invention;

FIG. 10 is an explanation view of a step for applying an adhesive for transfer
showing a third embodiment of the present invention;

FIG. 11 is an explanation view of a step for transferring showing a third
5 embodiment of the present invention;

FIG. 12 is a flow diagram showing a fourth embodiment of the present invention;

FIG. 13 is an explanation view of a step for applying an adhesive for transfer
showing a fourth embodiment of the present invention;

FIG. 14 is an explanation view of a step for transferring showing a fourth
10 embodiment of the present invention;

FIG. 15 is a flow diagram showing a fifth embodiment of the present
invention;

FIG. 16 is an explanation view of a step for transferring showing a fifth
embodiment of the present invention;

15 FIG. 17 is an explanation view of a step for forming a coating layer showing
a fifth embodiment of the present invention;

FIG. 18 is a flow diagram showing a sixth embodiment of the present
invention;

20 FIG. 19 is an explanation view of a print sheet showing a sixth embodiment of the
present invention;

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FIG. 20 is an explanation view of a step for forming a transfer sheet showing a sixth embodiment of the present invention;

FIG. 21 is an explanation view of a step for transferring showing a sixth embodiment of the present invention;

5 FIG. 22 is a flow diagram showing a seventh embodiment of the present invention;

FIG. 23 is an explanation view of a printed sheet showing a seventh embodiment of the present invention; and

FIG. 24 is an explanation view of a step for forming a transfer sheet showing 10 a seventh embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Preferred embodiments of the present invention are described in more detail below with reference to the accompanying drawings.

15 Figs. 1 - 5 illustrate a transfer method and an adhesive for transfer in accordance with a first embodiment of the present invention. The numeral 1 shows a step for applying with, for example, a brush, an adhesive 4 for transfer to an upper surface of a pattern 3 for transfer formed on a transfer sheet 2 by copying or printing. As shown in FIG. 3 and FIG. 4, the transfer sheet 2 used in the adhesive application step 1 is comprised of a copy sheet or 20 print sheet 9 and the pattern 3, the copy sheet or print sheet 9 having a remover layer 8

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which is formed after a remover 7 is applied or adhered to a liner sheet 6; and the pattern 3 for transfer includes the character, picture, etc. which is copied or printed and is formed using a resin toner on the upper surface of the remover layer 8 of the copy sheet or the print sheet 9.

5 Moreover, the adhesive 4 for transfer is a hot-melt adhesive or water-soluble or alcohol soluble adhesive including acrylic pressure sensitive adhesive, polyvinyl acetate adhesive, chloroprene rubber adhesive, polyurethane resin adhesive, polyvinyl chloride adhesive, silicon rubber adhesive and the like. The adhesive 4 has a surface tension such that it will spread on the upper surface of the pattern 3, the surface tension of the upper 10 surface of the pattern 3 being larger than the surface tension of water so that the adhesive 4 can move to the remover layer 8.

For this reason, since the adhesive 4 for transfer is applied on the upper surface of the pattern 3 for transfer of the transfer sheet 2, the adhesive moves smoothly on the upper surface of the pattern because of the surface tension of the adhesive, the adhesive 4 applied 15 on the remover layer 8 other than the pattern 3 for transfer slips off the upper surface of the remover layer 8, and adherence is therefore prevented from the part other than the pattern 3 to obtain better transfer of only the pattern 3.

The numeral 10 shows a step for transferring including over-transferring. The transfer step is performed one or more times and includes removing the liner sheet 6 of the 20 transfer sheet 2 after the part with the adhesive 4 is pushed or adhered fixedly with heating

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on a substrate 11 including a cloth, sheet, glass and a container. Although the transfer step 10 is performed once in the embodiment of present invention, it can be transferred onto a curved surface portion as well as a plane surface when there is a portion that can be adhered to the adhesive 4 for transfer.

5 Since the above-mentioned transfer method only uses the adhesive 4 for transfer, everyone can transfer easily, and it can be transferred to any object and expand the range of what to transfer on.

Other embodiments of the present invention will now be described with reference to Figs. 6 - 24. In Figs. 6 - 24, the same components as in the first embodiment described 10 above with reference to Figs. 6 - 24 are designated by the same reference numerals and therefore will not be further explained in great detail.

A second embodiment of the present invention is shown in Figs. 6 - 8. It is distinguished from the first embodiment in that the transfer sheet 2 is replaced with another transfer sheet 2A that is comprised of a copy sheet or print sheet 9A and the pattern for 15 transfer, the copy sheet or print sheet having a remover sheet 12 as the remover layer 8; the pattern for transfer being copied or printed on the remover sheet 12. A transfer method with an adhesive application step 1A according to the second embodiment has similar advantages to that according to the first embodiment.

A third embodiment of the present invention is shown in Figs. 9 - 11. It is 20 distinguished from the first embodiment in that the adhesive 4 is replaced by adhesive 4A

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for transfer which is a water-soluble or alcohol soluble adhesive including acrylic pressure sensitive adhesive, polyvinyl acetate adhesive, chloroprene rubber adhesive, polyurethane resin adhesive, polyvinyl chloride adhesive, silicon rubber adhesive and the like and which can be colored with a paint 13. A transfer method with an adhesive application step 1B according to the third embodiment has similar advantages to that according to the first embodiment, and the lining and the board effect are achieved by the adhesive layer formed by the application of the adhesive 4A for transfer by coloring the adhesive 4A with a paint 13.

Although the color white does not exist in the pattern 3 for transfer of the transfer sheet 2A formed by copying or printing, this situation is resolved by adding white coloring to adhesive 4A for transfer.

A fourth embodiment of the present invention is shown in Figs. 12 - 14. It is distinguished from the second embodiment in that the adhesive application step 1A is replaced with step 1C and the transfer step 10 is replaced with step 10A. In the adhesive application step 1C, an adhesive 4B is applied. The adhesive 4B, which adds flexibility to the upper surface of the pattern for transfer of the transfer sheet 2 or to the transferred surface of the substrate 11 and which has staining properties such that it can be colored with paint 13, is acrylic pressure sensitive adhesive, polyvinyl acetate adhesive, chloroprene rubber adhesive, polyurethane resin adhesive, polyvinyl chloride adhesive, silicon rubber adhesive and the like. In the transfer step 10A, the liner sheet is removed after the part with

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the adhesive 4B is pressed to the substrate 11 or after the pattern 3 for transfer of the transfer sheet 2 is adhered fixedly to the part of the substrate 11 where the adhesive 4B has been applied. A transfer method with an adhesive application step 1C according to the fourth embodiment has similar advantages to that according to the second embodiment.

5 A fifth embodiment of the present invention is shown in Figs. 15 - 17. It is distinguished from the first embodiment in that the transfer step 10 is replaced with step 10B and a step 16 for forming a coating layer, step 16 being performed after the transfer step 10B is carried out. Transfer step 10B, which includes removing the liner sheet 6 of the transfer sheet 2, is carried out at least two times in order that transferred pictures 14 are 10 transferred at different positions relative to each other or at overlapped positions on each other after the part where the adhesive 4 is applied is pushed or adhered fixedly with heating on a substrate 11 including a cloth, sheet, glass and a container. In the coating layer forming step 16, a quick-drying coat liquid 15, including a top coat of the transparent or colored manicure, is formed into at least one layer after the transfer step is carried out. The 15 above-mentioned step according to the fifth embodiment has similar advantages to that according to the first embodiment, and it can be honed to the three-dimensional transferred picture 14, where the coating layer covers the upper surface of the three-dimensional transfer picture 14 so that it can prevent discoloring or other damage.

 In addition, the more beautiful transferred picture 14 can be created by applying 20 the colored coat liquid 15 according to the colors of the pattern for transfer, one method of

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applying being as is done when painting a picture.

A sixth embodiment of the present invention is shown in Figs. 18 - 21. It is distinguished from the first embodiment in that a step 17 for forming a transfer sheet 2B is carried out, after that, a step 21 for transferring is carried out. The transfer sheet 2B is 5 comprised of the copy sheet or print sheet 9B, the pattern 3, the remover layer 8, and the remover 7, wherein the remover layer 8 is formed after the remover 7 is applied or adhered to the liner sheet 6; and the pattern 3 for transfer is copied or printed using a resin toner on the upper surface of the remover layer 8 of the copy sheet or the print sheet 9B. In the transfer step 21, the pattern 3 or the upper surface of the pattern 3 for transfer of the transfer 10 sheet 2B is transferred to the substrate 11 by either adhering by transparent or semi-transparent adhesives 18 or hot-melt resin 19 or adding the heat of an iron 20. The above-mentioned transfer step according to the sixth embodiment has similar advantages to that according to the first embodiment.

A seventh embodiment of the present invention is shown in Figs. 22 - 24. It is 15 distinguished from the sixth embodiment in that the forming step 17 is replaced with step 17A which forms a transfer sheet 2C with the pattern 3 formed on a remover sheet 22 of a print sheet 9C adhered to the liner sheet 6, the pattern 3 being formed by copying or printing with resin toner. The above-mentioned transfer step according to the seventh embodiment has similar advantages to that according to the sixth embodiment.

20 In the first to fourth embodiments of the present invention, the transfer step 10B

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and/or the forming step 16 of the coating layer may be carried out.

As set forth above, the advantages of the invention are as follows:

(1) The transfer method is comprised of a step for applying an adhesive for transfer to an upper surface of a pattern for transfer formed on a transfer sheet by copying or printing, the adhesive spreading on the upper surface of the pattern by surface tension, the adhesive for transfer being one of a hot-melt adhesive or water-soluble or alcohol soluble adhesive including acrylic pressure sensitive adhesive, polyvinyl acetate adhesive, chloroprene rubber adhesive, polyurethane resin adhesive, polyvinyl chloride adhesive, silicon rubber adhesive and the like; and a step for transferring including an over-transferring, the step for transferring being done one time or more and including removing a liner sheet after the part with the adhesive applied to it is pushed or adhered fixedly with heating on a substrate so that everyone can easily perform the transfer work since only the pattern for transfer can be transferred by the application work of the adhesive for transfer.

Therefore, everyone can transfer freely.

(2) As discussed above, the quality of the material or form of the substrate to transfer is not limited by the adhesive power of the adhesive for transfer, and the transfer object can be transferred to any substrate.

(3) As discussed above, the adhesive for transfer which is applied to the upper part of the pattern for transfer can move smoothly on the pattern for transfer because of surface tension when the adhesive for transfer is applied to the upper part of the pattern for transfer

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of the transfer sheet.

Therefore, the amount of the adhesive which overflows from the pattern for transfer can be reduced remarkably, and the pattern can be transferred finely.

(4) As discussed above, the three-dimensional transferred picture can be created
5 by the over-transferring being performed during the transfer step.

(5) The above (1) to (4) can be achieved with a transfer method wherein the adhesive is one of a water-soluble and alcohol soluble adhesive including acrylic pressure sensitive adhesive, polyvinyl acetate adhesive, chloroprene rubber adhesive, polyurethane resin adhesive, polyvinyl chloride adhesive, and silicon rubber adhesive, wherein the
10 adhesive can be colored by paint and wherein the lining and board effect are also achieved.

(6) The above (1) to (4) can also be achieved with a transfer method wherein a pattern is formed on a remover layer of a transfer sheet by copying or printing and the pattern is transferred to a substrate or to another pattern wherein the transferring comprises adhering with transparent or semi-transparent adhesives or with using the heat of an iron to
15 adhere with hot melt resins.

(7) The above (1) to (4) can also be achieved with a transfer method comprising forming a pattern on a remover layer of a transfer sheet by copying or printing, applying adhesive to the pattern or to a substrate, the adhesive being one of an acrylic pressure sensitive adhesive, polyvinyl acetate adhesive, chloroprene rubber adhesive, polyurethane resin adhesive, polyvinyl chloride adhesive and silicon rubber adhesive, the adhesive
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having flexibility and staining properties, and transferring the pattern one or more times by applying the pattern with adhesive to the substrate or applying the pattern without adhesive to the substrate with adhesive, wherein a coating layer can cover the transferred picture and can prevent discoloration and other damage.

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